

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions and listings of claims:

- 1-24 (Cancelled).
25. (Currently Amended) A stable foamed material consisting of a first fluid (K1) forming the matrix, a second fluid (K2) forming the foam bubbles (Z1), and an amphiphilic material (K3), wherein said first fluid (K1) can undergo attractive interaction with at least one first block of the amphiphilic material (K3) facing towards the first fluid, and said second fluid (K2) can undergo attractive interaction with at least one second block (B) of the amphiphilic material (K3) facing towards the second fluid;
wherein said first fluid (K1) consists of a material present in a liquid state of matter;
wherein said second fluid (K2) consists of a gaseous material which can be converted to a nearly-critical or supercritical state;
wherein said second fluid (K2) is dispersed in said first fluid (K1) to form pools (Po) through attractive interaction with the respectively facing blocks of said amphiphilic material (K3); and
wherein the pools (Po) have been transformed to foam bubbles (Z1) in which the second fluid (K2) is contained by changing the state of the second fluid (K2) from a nearly-critical or supercritical state to a subcritical state; wherein the average foam bubble size is smaller than 10 μm .
26. (Previously presented) The foamed material according to claim 25, wherein said first fluid (K1) is in a low-viscosity state.
27. (Previously presented) The foamed material according to claim 25, wherein said foam bubble density in the first fluid (K1) is from 10^{12} to 10^{18} per cm^3 , depending on the mixing ratio between the fluids (K1, K2), and the total volume of the foam bubbles (Z1) formed in the first fluid (K1) has a volume proportion of from 10 to 99%.
28. (Previously presented) The foamed material according to claim 25, wherein said first fluid

- (K1) is at least one substance selected from the group of substances consisting of polar substances and nearly polar substances.
29. (Withdrawn) The foamed material according to claim 25, wherein said first fluid (K1) consists of at least one polymerizable substance.
30. (Withdrawn) The foamed material according to claim 29, wherein the monomers of said polymerizable substance are selected from the group consisting of acrylamide and melamine.
31. (Withdrawn) The foamed material according to claim 25, wherein said first fluid (K1) consists of a mixture which contains at least one polymerizable substance.
32. (Withdrawn) The foamed material according to claim 31, wherein the monomers of said polymerizable substance are selected from the group consisting of acrylamide and melamine.
33. (Previously presented) The foamed material according to claim 25, wherein said second fluid (K2) is at least one substance selected from the group of substances consisting of hydrocarbons, alkanols, fluorochlorohydrocarbons and CO₂.
34. (Previously presented) The foamed material according to claim 25, wherein said amphiphilic material (K3) is at least one substance selected from the group of substances consisting of non-ionic, ionic and amphoteric surfactants, amphiphilic block copolymers, fluorinated surfactants, silicone surfactants and co-surfactants.
35. (Previously presented) The foamed material according to claim 25, wherein water is employed as said first fluid (K1), ethane is employed as said second fluid (K2), and octaethylene glycol monododecyl ether is employed as said amphiphilic material (K3).
36. (Withdrawn) A process for the preparation of a foamed material using a first fluid (K1)

forming the matrix, a second fluid (K2) forming the foam bubbles (Z1) and an amphiphilic material (K3), wherein said first fluid (K1) can undergo attractive interaction with at least one first block of the amphiphilic material (K3) facing towards the first fluid, and said second fluid (K2) can undergo attractive interaction with at least one second block (B) of the amphiphilic material (K3) facing towards the second fluid;

wherein said first fluid (K1) consists of a material present in a liquid state of matter;

wherein said second fluid (K2) consists of a gaseous material which can be converted to a nearly-critical or supercritical state;

comprising the following process steps performed in a reaction chamber:

said second fluid (K2) is converted by changing its state from the subcritical state to a nearly-critical or supercritical state;

said second fluid (K2) is dispersed in said first fluid (K1) to form pools (Po) through attractive interaction with the respectively facing blocks of said amphiphilic material (K3);
and

said second fluid (K2) is converted by changing its state from the previously adjusted state to the subcritical state;

wherein the pools (Po) are transformed to foam bubbles (Z1) in which the second fluid (K2) is contained.

37. (Withdrawn) The process according to claim 36, wherein said first fluid (K1) is in a low-viscosity state.
38. (Withdrawn) The process according to claim 36, wherein the process step of converting the density of said second fluid (K2) to a state of liquid-like density consists in converting said second fluid (K2) to a supercritical or nearly critical state and, while in this state, dispersing it in the first fluid (K1).
39. (Withdrawn) The process according to claim 38, wherein the temperature of the second fluid (K2) is raised to a temperature above the critical temperature of the second fluid (K2).
40. (Withdrawn) The process according to claim 39, wherein the temperature and pressure of

the second fluid (K2) is raised to a temperature and pressure above the critical temperature and above the critical pressure of the second fluid (K2).

41. (Withdrawn) The process according to claim 38, wherein the pressure of the second fluid (K2) is raised to a pressure above the critical pressure of the second fluid (K2).
42. (Withdrawn) The process according to claim 36, wherein the process step of converting the density of said second fluid (K2) to a state of gaseous density consists in lowering the pressure to a value below the critical pressure.
43. (Withdrawn) The process according to claim 36, wherein the process step of converting the density of said second fluid (K2) to a state of gaseous density consists in lowering the pressure to a value below the critical pressure and lowering the temperature to a value below the critical temperature.
44. (Withdrawn) The process according to claim 36, wherein the process step of converting the density of said second fluid (K2) to a state of gaseous density consists in lowering the temperature to a value below the critical temperature.
45. (Withdrawn) The process according to claim 36, wherein said dispersing of the second fluid (K2) in said first fluid (K1) is accompanied by a homogenization measure.
46. (Withdrawn) The process according to claim 36, wherein said first fluid (K1) is at least one substance selected from the group of substances consisting of polar substances and nearly polar substances.
47. (Withdrawn) The process according to claim 36, wherein at least one polymerizable substance is employed as said first fluid (K1).
48. (Withdrawn) The process according to claim 47, wherein the monomers of said polymerizable substance are selected from the group consisting of acrylamide and

melamine.

49. (Withdrawn) The process according to claim 36, wherein a mixture which contains at least one polymerizable substance is employed as said first fluid (K1).
50. (Withdrawn) The process according to claim 49, wherein the monomers of said polymerizable substance are selected from the group consisting of acrylamide and melamine.
51. (Withdrawn) The process according to claim 47, wherein at least one additive for controlling the polymerization is employed.
52. (Withdrawn) The process according to claim 51, wherein at least one additive for controlling the polymerization is employed.
53. (Withdrawn) The process according to claim 36, wherein at least one substance selected from the group of substances consisting of hydrocarbons, alkanols, fluorochlorohydrocarbons and/or CO₂ is employed as said second fluid (K2).
54. (Withdrawn) The process according to claim 36, wherein at least one substance selected from the group of substances consisting of non-ionic, ionic and amphoteric surfactants, amphiphilic block copolymers, fluorinated surfactants, silicone surfactants and/or co-surfactants is employed as said amphiphilic material (K3).
55. (Withdrawn) The process according to claim 53, wherein water is selected as said first fluid (K1), ethane is selected as said second fluid (K2), and octaethylene glycol monododecyl ether is selected as said amphiphilic material (K3).
56. (Withdrawn) The process according to claim 55, wherein water is selected as said first fluid (K1), ethane is selected as said second fluid (K2), and octaethylene glycol monododecyl ether is selected as said amphiphilic material (K3).

57. (Withdrawn) The process according to claim 36, wherein at least one additive is employed for controlling the interfacial tension between said first and second fluids.
58. (Withdrawn) The process according to claim 36, wherein at least one additive is employed for controlling the coalescence of bubbles.